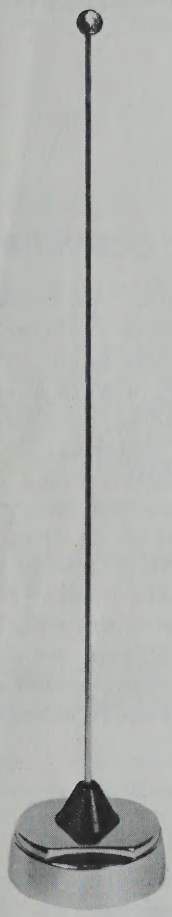
MOBILE ROOFTOP ANTENNAS



MODEL TABLE

ANTENNA MODEL	FREQUENCY RANGE
TAD6111A	136-144 MHz
TAD6112A	144-152 MHz
TAD6113A	152-162 MHz
TAD6114A	162-174 MHz
TAD6115A	132-136 MHz
TAE6051A	403-430 MHz
TAE6053A	430-450 MHz
TAE6052A	450-470 MHz
TAE6054A	470-512 MHz

1. INTRODUCTION

The mobile rooftop antennas listed in the Model Table are supplied with a coaxial lead-in cable and a connector. In the completed installation, the cable is concealed between the headlining and the roof of the vehicle, with a minimum disturbance to the headlining and the upholstery. Figure 1 provides a pictorial drawing of the disassembled antenna complete with component part numbers. Figure 2 shows an antenna assembled and mounted.

2. INSTALLATION

The installation procedure which follows is for a typical passenger car. The procedure may vary slightly with the type of vehicle on which the antenna is to be installed. Generally speaking, however, the procedures outlined are of a "universal" nature.

NOTE

The antenna should be mounted on a flat metal roof of .020 to .040 inch thickness.

First, select a location for the antenna as near the center of the roof as possible (see Step 1 of paragraph 2b.)

IMPORTANT

When installing the lead-in cable, the cable should be kept as short as possible to minimize rf loss for all frequency ranges except 470-512 MHz. When the antenna operates in the 470-512 MHz range, DO NOT CUT ANTENNA CABLE unless absolutely necessary. If cable must be shortened, refer to the table on the antenna kit tag for proper power output setting.

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Communications Division

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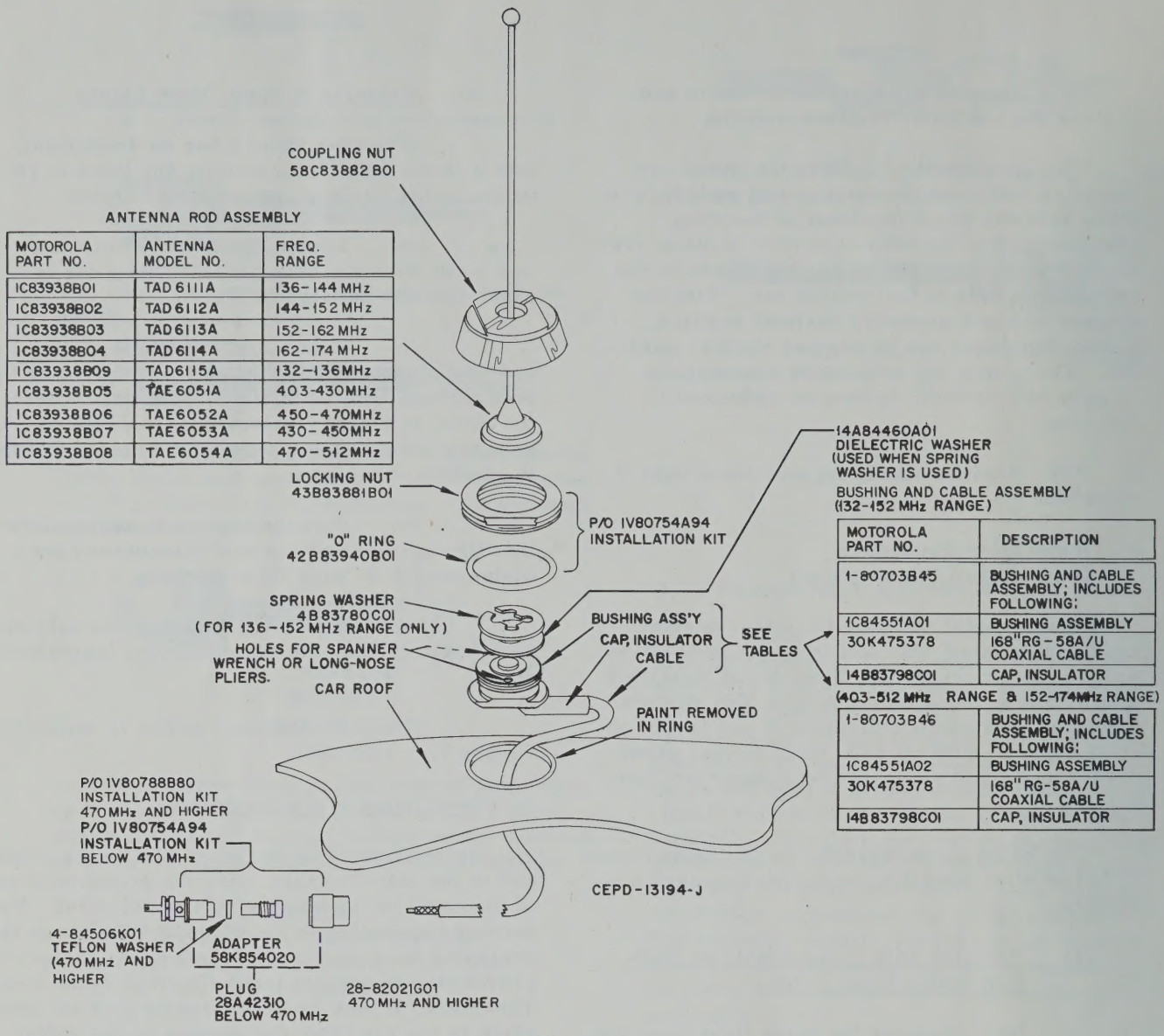

MOTOROLA PART NO.	ANTENNA MODEL NO.	FREQ. RANGE
1C83938B01	TAD6111A	136-144 MHz
1C83938B02	TAD6112A	144-152 MHz
1C83938B03	TAD6113A	152-162 MHz
1C83938B04	TAD6114A	162-174 MHz
1C83938B09	TAD6115A	132-136MHz
1C83938B05	TAE6051A	403-430MHz
1C83938B06	TAE6052A	450-470MHz
1C83938B07	TAE6053A	430-450MHz
1C83938B08	TAE6054A	470-512MHz

BUSHING AND CABLE ASSEMBLY
(132-152 MHz RANGE)

MOTOROLA PART NO.	DESCRIPTION
1-80703B45	BUSHING AND CABLE ASSEMBLY; INCLUDES FOLLOWING:
1C84551A01	BUSHING ASSEMBLY
30K475378	168" RG-58A/U COAXIAL CABLE
14B83798C01	CAP, INSULATOR

(403-512 MHz RANGE & 152-174MHz RANGE)

1-80703B46	BUSHING AND CABLE ASSEMBLY; INCLUDES FOLLOWING:
1C84551A02	BUSHING ASSEMBLY
30K475378	168" RG-58A/U COAXIAL CABLE
14B83798C01	CAP, INSULATOR

Figure 1.

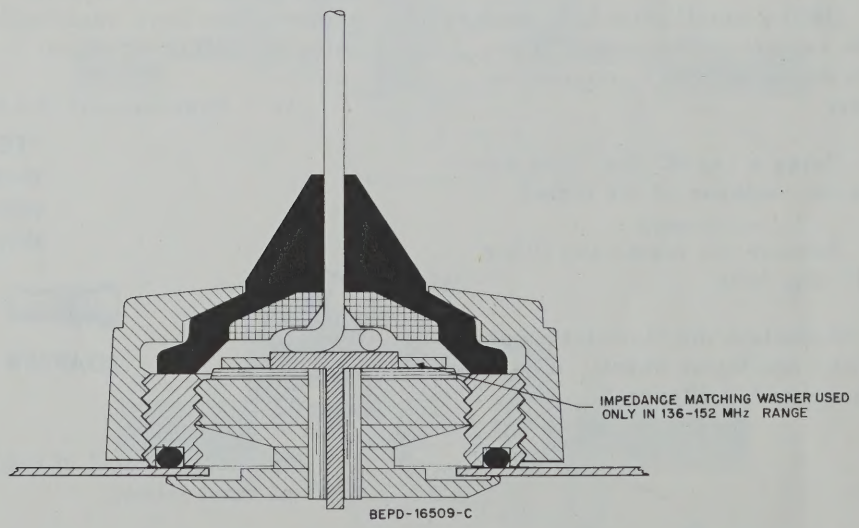

Figure 2.

The headlining may be probed with the fingers to make sure that all points of obstruction will be avoided.

a. Installation Procedure
(Typical Sedan)

(1) Locate the center of the roof by careful measurement, remove the headlining as necessary, and drill a pilot hole down through the roof. If the interior light of the car is centered in the roof, remove this light and fixture and drill the pilot hole up through the roof at about the center of the interior light mountings. This will center the antenna mount on the roof and allow for easy access.

(2) With a Motorola hole cutting saw (Model ST-157) or equivalent, drill a 3/4" hole from the top of the roof until the saw bottoms. When the saw bottoms on the roof, it will clean off the paint in a neat circle and assure good contact with the locking nut.

IMPORTANT

For proper seating of bushing assembly, remove burr and scrape any foreign matter from underside of hole out to at least 1/8" from edge.

(3) Remove the molding which secures the headliner in the rear quarter of the car on the side on which the radio set is installed.

NOTE

To insure ease of assembly, thread the locking nut on and then off the bushing assembly before installation. This will remove any burrs which may be present.

(4) See Figure 3. From the top, feed the RG-58A/U Lead-In cable between the headliner and the metal roof, and back into the trunk. Then take up the slack from the trunk end of the cable.

(5) See Figure 4. The bushing assembly is now in a position to drop into the hole in the roof. It should be tilted at a slight angle and fed into the 3/4" hole. The threaded top will not fall through the hole.

(6) See Figure 5. Hold the antenna bushing assembly in place with the index finger and thread the locking nut onto it as illustrated.

(7) Pull up on the bushing assembly as illustrated in Figure 6, and make sure it is centered and "seated" (both shoulders inside the drilled hole), and that the "O" ring is in the groove in the locking nut. (As furnished, the "O" ring has been placed in the locking nut groove and imbedded in silicone grease). Tighten the locking nut until it bottoms firmly against the roof top.

NOTE

See Figure 1. If the bushing assembly should slip or rotate for any reason during the tightening procedure, insert the tips of a long nose plier or spanner wrench into the two holes in the bushing assembly and apply force to prevent rotation until the locking nut is tight.

The locking nut must come into contact with the car roof to insure the proper antenna radiation pattern. This can only happen when the rubber "O" ring is fully compressed.

Figure 3.

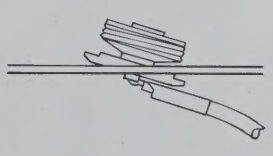

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Figure 4.

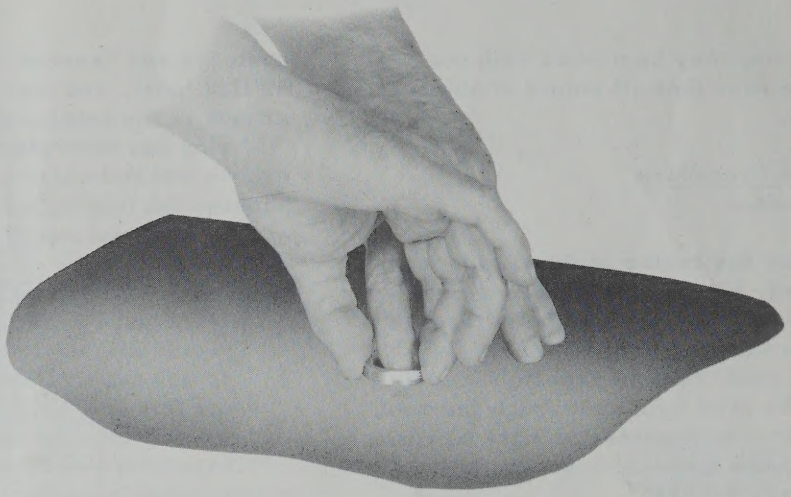


Figure 5.

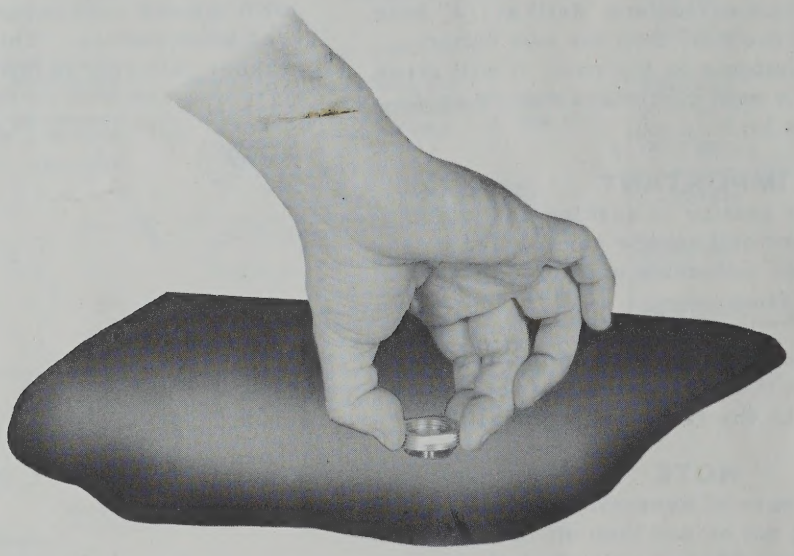


Figure 6.

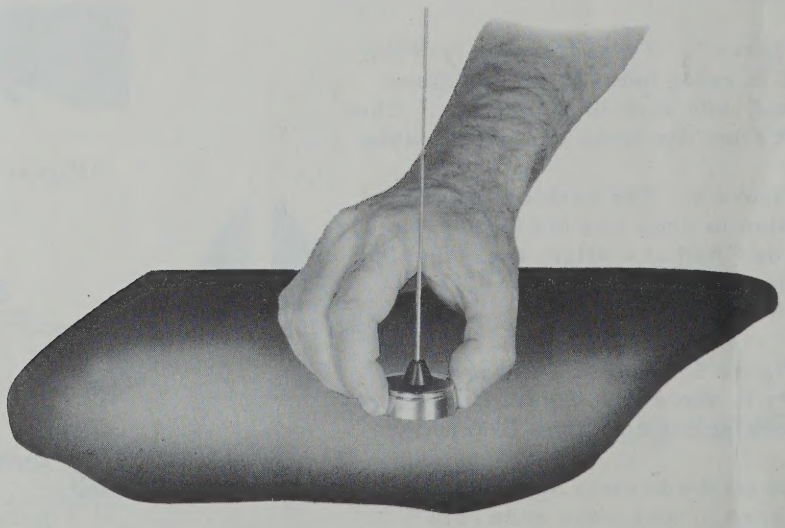


Figure 7.

(8) Take up the slack in the cable and replace the headliner retainer molding.

(9) See Figure 7. Slide the metal cap (coupling nut) over the antenna rod until it is in place over the black insulator of the whip assembly. Put the whip assembly in place over the locking nut and secure the metal cap to the external threads of the locking nut. With the antenna rod in a perfectly vertical position, tighten the metal cap by hand as tight as possible. Then, with 10" adjustable wrench or a 1" open end wrench, tighten an additional 1/2 turn.

(10) Replace headlining and dome light if removed.

b. Installation Procedure
(Double Wall Construction)

Newer model vehicles are being designed and manufactured with double wall construction which might increase the difficulty of installing this mobile antenna on the double wall surface. A typical construction consists of two layers of steel approximately 0.040" thick spaced about 0.125" apart and separated by a paper or foam filler.

The following paragraphs detail the approach to follow when installing an antenna on such a surface.

(1) Vehicles with Dome Lights or With Removable Head Liner

(a) Remove the dome light from its mount or remove the liner from the installation area.

(b) Drill a small pilot hole centered in the roof of the vehicle. The center of the cavity where the dome light was removed is sufficiently close.

(c) Using a 1-1/4" dia. hole saw cut a hole in the inside layer of the metal.

(d) Remove the metal and filler from this 1-1/4" dia. hole.

(e) Complete the installation per the accompanying installation sheet. A completed mount is illustrated in Figure 8.

(2) Vehicles Without Dome Lights

When the vehicle has no dome light, and it is not feasible to remove the liner to get to the inside surface, proceed as follows:

(a) Locate the center of the roof and make sure the area beneath this point is clear to allow passage of a drill.

(b) With a 3/4" dia. hole cutting saw carefully cut a 3/4" hole from the top of the roof through both thicknesses of metal. Clean the metal in a neat circle around the hole to assure a good contact between the roof metal and the locking nut.

(c) Remove any burrs and remove the filler separating the roof thicknesses for a distance of 1/4" back from the hole.

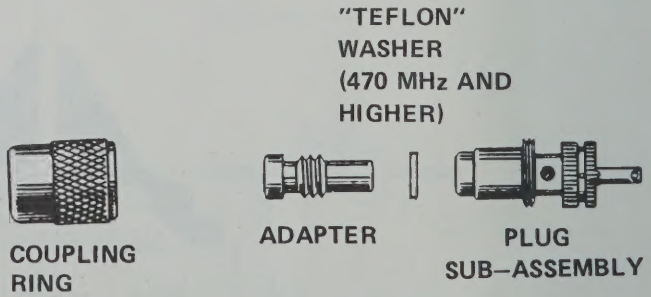
(d) Install the mount to the outside roof thickness per the accompanying instruction sheet.

A completed mount is shown in Figure 9.

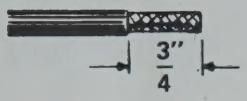
c. Installation of the Connector

Before installing the connector on the trunk end of the lead-in cable, plan the proposed dress of the cable to the location of the radio set. For antennas operating in the 470-512 MHz range the cable has been pre-cut to length at the factory to provide the maximum legal effective radiated power. Therefore, it may be necessary to take up some slack in the run from the antenna to the radio. At all other frequencies, install the cable using a minimum of cable and cut off any excess length to avoid unnecessary rf loss. When the necessary preparations have been made, install the connector using the following steps:

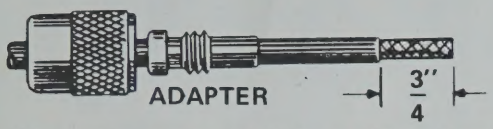
(1) Disassemble the connector.



(2) Cut off end of cable squarely. Remove 3/4" of vinyl jacket.

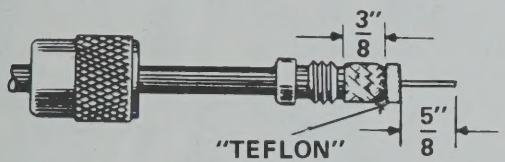


(3) Slide coupling ring and adapter on cable.



(4) Fan braid slightly and fold back as shown.

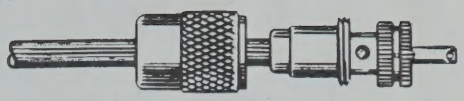
(5) Position adapter to dimension shown. Press braid back over body of adapter and trim to 3/8". Bare 5/8" of conductor. Tin exposed center conductor.



(6) Screw adapter into body of plug sub-assembly. Solder braid to body of plug sub-assembly through holes. Solder center conductor of cable to plug contact of plug sub-assembly.

CAUTION

Use very hot iron. Solder quickly and chill immediately with cold, wet cloth. DO NOT USE EXCESSIVE HEAT OR SOLDER.



(7) For final assembly, screw coupling ring on plug sub-assembly.

(8) Connect cable to antenna receptacle on radio set. Tighten coupling ring.

3. FREQUENCY CONVERSION

See Model Table. Antennas in each band are equipped with whip radiators cut to the proper length for that specific band. To change from one band to another, a whip assembly of the proper length should be substituted for one previously in use. Antennas in the 136-152 MHz range are also equipped with a spring washer (see Figure 1) to provide for proper impedance matching. Should it be desired to change from an antenna in the 136-152 MHz range to one in the other ranges, this washer must be removed in addition to changing the whip assembly. Conversely, to shift from the other ranges in the 136-152 MHz range, a spring washer must be installed in addition to changing the whip assembly.

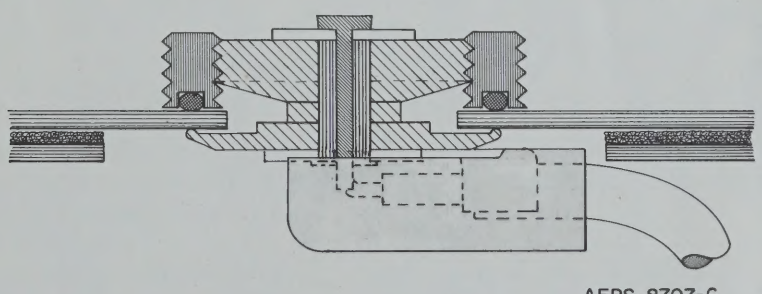


Figure 8.

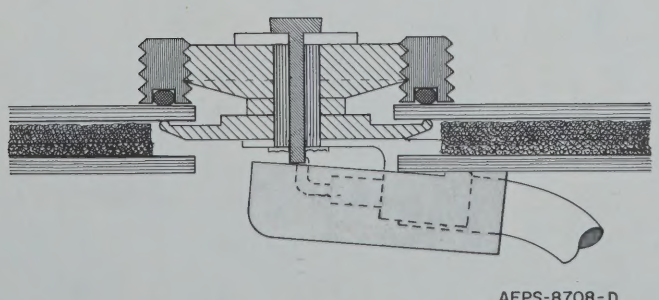


Figure 9.